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Sampling Strategies in Land Use Mapping Using Skylab Data

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## INTRODUCTION

This investigation is designed to use Skylab S-192 multispectral scanner data and S-190 multispectral photography to examine those parameters influencing sampling strategies for automated thematic land use mapping with spacecraft data.

Work during this reporting period has focused on the collection and processing of ground truth data for the SL/3 overpass of Washington, D.C., and the preparation of regional land use maps for St Marys County and Wicomico County, Maryland.

### WORK PERFORMED THIS REPORTING PERIOD:

#### Ground Truth Data Acquisition

Collection of ground truth data for the SL/3 overpass of the Washington, D.C.-Baltimore test site was completed. Consistency checks, formatting, and coding of this data for entry into the data base is almost completed. As stated in the July report, funding limitations prohibited a detailed ground truth effort over the entire area imaged on SL/3. Collection of ground truth data concentrated on a 42 x 45 mile area (1890 square miles) in the Baltimore-Washington corridor. Ground truth data were collected for 155 square mile sample plots. Sample plots were located in thirteen counties in Maryland, Virginia, and the District of Columbia. Using the USGS Level I Land Classification, the 155 plots can be classified as to predominant land use type:

- 64 - Urban and Built-up Land
- 75 - Agriculture
- 10 - Forests
- 6 - Wetlands

A detailed breakdown of Level I plots by county is given in Tables 1 and 2.

TABLE 1. Sample Plots by County and Level I Land Use Classification for Area Imaged Only on SL/3.

<u>County</u>	<u>Urban</u>	<u>Agriculture</u>	<u>Forest</u>	<u>Wetlands</u>	<u>Total</u>
Anne Arundel	14	12			26
Baltimore City	3				3
Baltimore County	11	3			14
Carroll	3	6			9
Howard	6	9			15
Montgomery	5	6			11
Prince Georges	<u>6</u>	<u>2</u>	<u>1</u>	<u>—</u>	<u>9</u>
	<u>48</u>	<u>38</u>	<u>1</u>	<u>--</u>	<u>87</u>

TABLE 2. Sample Plots by County and Level I Land Use Classification Imaged on SL/2 and SL/3.

<u>County</u>	<u>Urban</u>	<u>Agriculture</u>	<u>Forest</u>	<u>Wetlands</u>	<u>Total</u>
Ann Arundel		2			2
Calvert			4		4
D. C.	2				2
Dorchester			2	4	6
Montgomery	7	8	1		16
Prince Georges	6	5			11
Somerset	1	6			7
Talbot		1			1
Wicomico		5	1		6
Worcester	<u>—</u>	<u>10</u>	<u>1</u>	<u>2</u>	<u>13</u>
	<u>16</u>	<u>37</u>	<u>9</u>	<u>6</u>	<u>68</u>

#### Aircraft/Spacecraft Data Acquisition

Skylab data were obtained over the Washington, D.C. - Baltimore test site on 5 August 1973 and over the Alice Springs, Australia test site on 12 August 1973. Weather conditions were good in the Washington, D.C. -

Baltimore area but poor conditions were reported for the Alice Springs, Australia area.

Screening imagery of the S-192 data over the Washington, D.C. - Baltimore test site were reviewed and requests submitted for digital tape data for the areas identified by GMT coordinates:

GMT 73/6/12 13:00:54

through

GMT 73/6/12 13:01:24

Requests were also submitted for negative and positive transparencies of S-192 MSS data channels 2,7,8,9, and 11. These requests apply only to S-192 data obtained on 12 June 1973 and will change if data is available in other spectral regions on subsequent data collection missions.

#### Regional Land Use Maps

Regional land use maps were prepared for St. Marys County and Wicomico County, Maryland from RB-57 aircraft color infrared photography. The map products are uncontrolled mosaics constructed from several frames of high altitude photography and will serve as a data base for comparison and analysis of Skylab S-190A and S-192 data.

#### Work to Be Performed Next Period

Analysis of RB-57 aircraft data and S-190 data will continue. Image interpretation will provide data to be used to generate maps showing boundary delineation of regional and sub-regional land use categories. This data will also be used in Task VII (Quantitative Comparison of Map Products...) as described in the Milestone Plan.

#### Significant Results

There are no significant results to report at this time.

Publications, Papers, Talks, Etc.

None.